

Magnitude 7 Metals LLC

STACK SAMPLE RESULTS

METHOD 14

LINE 2

Run Number 2

6/27/2019 - 6/28/2019

EPA Method # 5 & 14

METER VOLUME	1134.500	CU. FT.
SQUARE ROOT OF DELTA P	0.353	SQ. ROOT IN. WATER
AVERAGE DELTA H	2.294	IN. WATER
METERED GAS TEMPERATURE	69.5	DEG. F
STATIC PRESSURE IN STACK	-0.54	IN. WATER
STACK TEMPERATURE	109.3	DEG. F
BAROMETRIC PRESSURE	29.80	IN. Hg
PROBE TIP DIAMETER	0.3655	INCHES
GAS METER CORRECTION FACTOR	0.992	
TOTAL SAMPLING TIME	1395.0	MINUTES
TOTAL WATER COLLECTED	394.8	GRAMS
MOLECULAR WEIGHT	28.8	LB/LB-MOLE
SAMPLING DUCT AREA	1.25	SQ. FT.
TOTAL PARTICULATE COLLECTED	0.0452	GRAMS
GASEOUS FLUORIDE COLLECTED	0.01428	GRAMS
PARTICULATE FLUORIDE COLLECTED	0.00763	GRAMS
AVG ALUMINUM PRODUCTION RATE	441944	LBS./DAY/LINE
MANIFOLD ANEMOMETER VELOCITY	85.5	FT./MIN.
MANIFOLD THERMOCOUPLE TEMPERATURE	121.7	DEG. F
AVERAGE ROOF EXIT VELOCITY	99.2	FT./MIN.
AVERAGE ROOF EXIT TEMPERATURE	120.8	DEG. F
VOLUMETRIC FLOWRATE OUT ROOF	6335706	ACFM/LINE
VOLUME GAS SAMPLED	1124.058	SCF
MOISTURE IN STACK GAS	1.626	%
VELOCITY OF STACK GAS (ACTUAL)	1243	FT./MIN.
VOLUMETRIC FLOWRATE IN DUCT	1410	SCFM
PERCENT ISOKINETIC - TRAIN TO DUCT	98.05	%
VOLUMETRIC FLOWRATE OUT ROOF	5643316	SCFM/LINE
PERCENT ISOKINETIC - MANIFOLD TO ROOF	131.15	%
SECONDARY PARTICULATE CONCENTRATION	0.0015	GRAMS/SCM
SECONDARY PARTICULATE CONCENTRATION	0.00066	GRAINS/SCF
SECONDARY PARTICULATE EMISSION	31.69	LBS./HR.
SECONDARY PARTICULATE EMISSION	3.44	LBS./TON
PRIMARY PARTICULATE EMISSION	3.99	LBS./TON
PRIMARY AND SECONDARY PARTICULATE EMITTED	7.43	LBS./TON
GASEOUS FLUORIDE CONCENTRATION	0.474	MG./SCM
GASEOUS FLUORIDE CONCENTRATION	0.000207	GRAINS/SCF
PARTICULATE FLUORIDE CONCENTRATION	0.253	MG./SCM
PARTICULATE FLUORIDE CONCENTRATION	0.000111	GRAINS/SCF
TOTAL FLUORIDE CONCENTRATION	0.727	MG./SCM
TOTAL FLUORIDE CONCENTRATION	0.000318	GRAINS/SCF
TOTAL FLUORIDE EMISSION	15.361	LBS./HR./LINE
AVG. ALUMINUM PRODUCTION RATE	9.21	TON/HR./LINE
TOTAL SECONDARY FLUORIDE EMITTED	1.668	LBS./TON
TOTAL PRIMARY FLUORIDE EMITTED	0.458	LBS./TON
TOTAL PRIMARY AND SECONDARY FLUORIDE EMITTED	2.126	LBS./TON

Magnitude 7 Metals LLC

STACK SAMPLE RESULTS

METHOD 14

LINE 2

Run Number 1

9/26/2019 - 9/27/2019

EPA Method # 14

METER VOLUME	1002.833	CU. FT.
SQUARE ROOT OF DELTA P	0.391	SQ. ROOT IN. WATER
AVERAGE DELTA H	1.794	IN. WATER
METERED GAS TEMPERATURE	67.4	DEG. F
STATIC PRESSURE IN STACK	-0.64	IN. WATER
STACK TEMPERATURE	95.4	DEG. F
BAROMETRIC PRESSURE	29.59	IN. Hg
PROBE TIP DIAMETER	0.3252	INCHES
GAS METER CORRECTION FACTOR	1.003	
TOTAL SAMPLING TIME	1395.0	MINUTES
TOTAL WATER COLLECTED	332.5	GRAMS
MOLECULAR WEIGHT	28.9	LB/LB-MOLE
SAMPLING DUCT AREA	1.25	SQ. FT.

GASEOUS FLUORIDE COLLECTED	0.03163	GRAMS
PARTICULATE FLUORIDE COLLECTED	0.01424	GRAMS
AVG ALUMINUM PRODUCTION RATE	455492	LBS./DAY/LINE

MANIFOLD ANEMOMETER VELOCITY	98.7	FT./MIN.
MANIFOLD THERMOCOUPLE TEMPERATURE	110.0	DEG. F
AVERAGE ROOF EXIT VELOCITY	94.9	FT./MIN.
AVERAGE ROOF EXIT TEMPERATURE	107.4	DEG. F
VOLUMETRIC FLOWRATE OUT ROOF	6061074	ACFM/LINE

VOLUME GAS SAMPLED	999.817	SCF
MOISTURE IN STACK GAS	1.541	%
VELOCITY OF STACK GAS (ACTUAL)	1362	FT./MIN.
VOLUMETRIC FLOWRATE IN DUCT	1574	SCFM
PERCENT ISOKINETIC - TRAIN TO DUCT	98.70	%
VOLUMETRIC FLOWRATE OUT ROOF	5491999	SCFM/LINE
PERCENT ISOKINETIC - MANIFOLD TO ROOF	125.03	%

GASEOUS FLUORIDE CONCENTRATION	1.145	MG./SCM
GASEOUS FLUORIDE CONCENTRATION	0.000500	GRAINS/SCF
PARTICULATE FLUORIDE CONCENTRATION	0.516	MG./SCM
PARTICULATE FLUORIDE CONCENTRATION	0.000225	GRAINS/SCF
TOTAL FLUORIDE CONCENTRATION	1.661	MG./SCM
TOTAL FLUORIDE CONCENTRATION	0.000726	GRAINS/SCF
TOTAL FLUORIDE EMISSION	34.167	LBS./HR./LINE
AVG. ALUMINUM PRODUCTION RATE	9.49	TON/HR./LINE
TOTAL SECONDARY FLUORIDE EMITTED	3.612	LBS./TON
TOTAL PRIMARY FLUORIDE EMITTED	0.826	LBS./TON
TOTAL FLUORIDE EMITTED	4.438	LBS./TON

Magnitude 7 Metals LLC

STACK SAMPLE RESULTS

METHOD 14

LINE 2

Run Number 2

10/10/2019 - 10/11/2019

EPA Method # 5 & 14

METER VOLUME	877.538	CU. FT.
SQUARE ROOT OF DELTA P	0.323	SQ. ROOT IN. WATER
AVERAGE DELTA H	1.300	IN. WATER
METERED GAS TEMPERATURE	71.1	DEG. F
STATIC PRESSURE IN STACK	-0.46	IN. WATER
STACK TEMPERATURE	104.2	DEG. F
BAROMETRIC PRESSURE	29.64	IN. Hg
PROBE TIP DIAMETER	0.3306	INCHES
GAS METER CORRECTION FACTOR	1.003	
TOTAL SAMPLING TIME	1395.0	MINUTES
TOTAL WATER COLLECTED	339.2	GRAMS
MOLECULAR WEIGHT	28.9	LB/LB-MOLE
SAMPLING DUCT AREA	1.25	SQ. FT.
TOTAL PARTICULATE COLLECTED	0.0422	GRAMS
GASEOUS FLUORIDE COLLECTED	0.01591	GRAMS
PARTICULATE FLUORIDE COLLECTED	0.00765	GRAMS
AVG ALUMINUM PRODUCTION RATE	451044	LBS./DAY/LINE
MANIFOLD ANEMOMETER VELOCITY	134.9	FT./MIN.
MANIFOLD THERMOCOUPLE TEMPERATURE	120.4	DEG. F
AVERAGE ROOF EXIT VELOCITY	106.1	FT./MIN.
AVERAGE ROOF EXIT TEMPERATURE	118.3	DEG. F
VOLUMETRIC FLOWRATE OUT ROOF	6776395	ACFM/LINE
VOLUME GAS SAMPLED	869.204	SCF
MOISTURE IN STACK GAS	1.804	%
VELOCITY OF STACK GAS (ACTUAL)	1135	FT./MIN.
VOLUMETRIC FLOWRATE IN DUCT	1290	SCFM
PERCENT ISOKINETIC - TRAIN TO DUCT	101.30	%
VOLUMETRIC FLOWRATE OUT ROOF	6018518	SCFM/LINE
PERCENT ISOKINETIC - MANIFOLD TO ROOF	76.43	%
SECONDARY PARTICULATE CONCENTRATION	0.0017	GRAMS/SCM
SECONDARY PARTICULATE CONCENTRATION	0.00075	GRAINS/SCF
SECONDARY PARTICULATE EMISSION	38.65	LBS./HR.
SECONDARY PARTICULATE EMISSION	4.11	LBS./TON
PRIMARY PARTICULATE EMISSION	3.68	LBS./TON
PRIMARY AND SECONDARY PARTICULATE EMITTED	7.79	LBS./TON
GASEOUS FLUORIDE CONCENTRATION	0.646	MG./SCM
GASEOUS FLUORIDE CONCENTRATION	0.000282	GRAINS/SCF
PARTICULATE FLUORIDE CONCENTRATION	0.311	MG./SCM
PARTICULATE FLUORIDE CONCENTRATION	0.000136	GRAINS/SCF
TOTAL FLUORIDE CONCENTRATION	0.957	MG./SCM
TOTAL FLUORIDE CONCENTRATION	0.000418	GRAINS/SCF
TOTAL FLUORIDE EMISSION	21.578	LBS./HR./LINE
AVG. ALUMINUM PRODUCTION RATE	9.40	TON/HR./LINE
TOTAL SECONDARY FLUORIDE EMITTED	2.296	LBS./TON
TOTAL PRIMARY FLUORIDE EMITTED	0.826	LBS./TON
TOTAL PRIMARY AND SECONDARY FLUORIDE EMITTED	3.122	LBS./TON

Magnitude 7 Metals LLC

STACK SAMPLE RESULTS

METHOD 14

LINE 2

Run Number 3

11/20/2019 - 11/21/2019

EPA Method # 5 & 14

METER VOLUME	861.204	CU. FT.
SQUARE ROOT OF DELTA P	0.307	SQ. ROOT IN. WATER
AVERAGE DELTA H	1.297	IN. WATER
METERED GAS TEMPERATURE	76.6	DEG. F
STATIC PRESSURE IN STACK	-0.44	IN. WATER
STACK TEMPERATURE	85.8	DEG. F
BAROMETRIC PRESSURE	29.76	IN. Hg
PROBE TIP DIAMETER	0.3339	INCHES
GAS METER CORRECTION FACTOR	1.000	
TOTAL SAMPLING TIME	1395.0	MINUTES
TOTAL WATER COLLECTED	72.8	GRAMS
MOLECULAR WEIGHT	28.8	LB/LB-MOLE
SAMPLING DUCT AREA	1.25	SQ. FT.
TOTAL PARTICULATE COLLECTED	0.0273	GRAMS
GASEOUS FLUORIDE COLLECTED	0.01114	GRAMS
PARTICULATE FLUORIDE COLLECTED	0.00624	GRAMS
AVG ALUMINUM PRODUCTION RATE	414589	LBS./DAY/LINE
MANIFOLD ANEMOMETER VELOCITY	90.3	FT./MIN.
MANIFOLD THERMOCOUPLE TEMPERATURE	102.5	DEG. F
AVERAGE ROOF EXIT VELOCITY	94.4	FT./MIN.
AVERAGE ROOF EXIT TEMPERATURE	99.9	DEG. F
VOLUMETRIC FLOWRATE OUT ROOF	6029140	ACFM/LINE
VOLUME GAS SAMPLED	845.991	SCF
MOISTURE IN STACK GAS	0.403	%
VELOCITY OF STACK GAS (ACTUAL)	1056	FT./MIN.
VOLUMETRIC FLOWRATE IN DUCT	1264	SCFM
PERCENT ISOKINETIC - TRAIN TO DUCT	98.62	%
VOLUMETRIC FLOWRATE OUT ROOF	5632395	SCFM/LINE
PERCENT ISOKINETIC - MANIFOLD TO ROOF	106.49	%
SECONDARY PARTICULATE CONCENTRATION	0.0011	GRAMS/SCM
SECONDARY PARTICULATE CONCENTRATION	0.00050	GRAINS/SCF
SECONDARY PARTICULATE EMISSION	24.04	LBS./HR.
SECONDARY PARTICULATE EMISSION	2.78	LBS./TON
PRIMARY PARTICULATE EMISSION	3.68	LBS./TON
PRIMARY AND SECONDARY PARTICULATE EMITTED	6.46	LBS./TON
GASEOUS FLUORIDE CONCENTRATION	0.465	MG./SCM
GASEOUS FLUORIDE CONCENTRATION	0.000203	GRAINS/SCF
PARTICULATE FLUORIDE CONCENTRATION	0.260	MG./SCM
PARTICULATE FLUORIDE CONCENTRATION	0.000114	GRAINS/SCF
TOTAL FLUORIDE CONCENTRATION	0.725	MG./SCM
TOTAL FLUORIDE CONCENTRATION	0.000317	GRAINS/SCF
TOTAL FLUORIDE EMISSION	15.306	LBS./HR./LINE
AVG. ALUMINUM PRODUCTION RATE	8.64	TON/HR./LINE
TOTAL SECONDARY FLUORIDE EMITTED	1.772	LBS./TON
TOTAL PRIMARY FLUORIDE EMITTED	0.826	LBS./TON
TOTAL PRIMARY AND SECONDARY FLUORIDE EMITTED	2.598	LBS./TON